USER MANUAL

The Vest™ Airway Clearance System, Model 105

From Hill-Rom

145330 REV 1

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Manufactured by:
HILL-ROM COMPANY, INC.
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CHARLESTON, SC 29405

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To order additional copies of this manual (145330), refer to the back cover for contact information. For countries not listed on the back cover, contact your distributor.

NOTE:
The back cover is a comprehensive list of Technical Support contact information for Hill-Rom. The product discussed in this manual may not be available in all of the countries listed.

Revision	Pages Affected	Date
Original Issue		February 2007

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DOCUMENT SYMBOLS

This manual contains different typefaces and symbols to make the content easier to read and understand:

- Standard text—used for regular information.
- **Boldface text**—emphasizes a word or phrase.
- **NOTE:**—sets apart special data or important instruction clarification.
- WARNING or CAUTION:

  - A WARNING identifies situations or actions that may have an effect on patient or user safety. To ignore a warning could cause patient or user injury.
  - A CAUTION identifies special procedures or precautions that persons must obey to help prevent equipment damage.
- ELECTRICAL SHOCK HAZARD WARNING:

IMPORTANT SAFEGUARDS

When using electrical products, especially when children are present, basic safety precautions should always be followed, including the following important safeguards.

READ ALL INSTRUCTIONS BEFORE USING

⚠ DANGER:

To reduce the risk of electrocution, follow these instructions. Failure to do so could cause personal injury or equipment damage.

Always unplug this product immediately after using.

⚠ WARNING:

To reduce the risk of burns, electrocution, fire, or personal injury, follow these instructions. Failure to do so could cause personal injury or equipment damage.

1. It may be necessary for patients who find it difficult to remove secretions from the upper airway (such as those with DMD or other advanced neuromuscular or neurological disorders) to include specialized therapy procedures along with use of The Vest™ Airway Clearance System. These procedures may include manually or mechanically assisted coughing or other therapies. Please consult your physician to determine if additional therapy is necessary.
2. Close supervision throughout the treatment is necessary when this product is used by children or patients with physical limitations or impaired cognitive abilities.
3. We recommend your first use of this product be in a supervised setting such as a doctor's office or at home with a clinical trainer.

4. Use this product only for its intended use as described in this manual. Do not use attachments not recommended by the manufacturer.
5. If this product has a damaged Power Cord or plug, is not working properly, or has been dropped or damaged, do not operate it. For examination and repair, contact Hill-Rom Customer Service. For contact information, refer to the back cover.
6. Keep the unit and its Power Cord away from heated surfaces.
7. Never drop or insert any inappropriate object into any opening on the unit.
8. Plug this product into a correctly grounded outlet **only**.
9. Read and follow all instructions for setup, use, and maintenance of The Vest™ Airway Clearance System. Failure to do so could cause patient injury or equipment damage.
10. If conditions exist that prohibit using The Vest™ Airway Clearance System, do **not** use the unit. Death or serious injury could occur.
11. Federal USA law restricts this device to sale by or on the order of a physician. Sale by or on the order of unauthorized persons can cause patient injury.
12. Only authorized personnel should service The Vest™ Airway Clearance System. Servicing by unauthorized personnel could cause personal injury or equipment damage.

NOTE:
If service is required in the United States, contact Hill-Rom Customer Service. For contact information, refer to the back cover. Outside of the United States, refer to the back cover for contact information. For countries not listed on the back cover, contact your distributor.

13. The potential for electrical shock exists with electrical equipment. Failure to follow protocols may cause death or serious personal injury.
14. If the Air Pulse Generator is wet or damp, do **not** plug it into a power source or use it. Patient injury, personal injury, or equipment damage could occur.
15. Use a correctly grounded electrical outlet **only**. Failure to do so could cause equipment damage.
16. Before cleaning, unplug the unit from its power source. Failure to do so could cause personal injury or equipment damage.
17. Do not expose the unit to excessive moisture or immerse it in water. Personal injury or equipment damage could occur.
18. Do **not** run the Air Pulse Generator without the inflatable vest and Air Hoses attached. Equipment damage could occur.
19. Do not use harsh cleansers, solvents, or detergents. Equipment damage could occur.
20. Retain the original packaging material. If shipping is required, the original packing material provides the best protection for The Vest™ Airway Clearance System.

SAVE THESE INSTRUCTIONS

CONTRAINDICATIONS

⚠ WARNING:

If conditions exist that prohibit using The Vest™ Airway Clearance System, do **not** use the unit. Death or serious injury could occur.

If the following conditions exist, The Vest™ Airway Clearance System is **not** appropriate for use:

- Head and/or neck injury that has not yet been stabilized
- Active hemorrhage with hemodynamic instability

RELATIVE CONTRAINDICATIONS

According to the American Association for Respiratory Care (AARC) Guidelines for Postural Drainage Therapy, the decision to use the unit for airway clearance therapy requires careful consideration and assessment of the individual patient's case if the following conditions exist:

- Intracranial pressure (ICP) greater than 20 mm Hg
- Recent spinal surgery or acute spinal injury
- Bronchopleural fistula
- Pulmonary edema associated with congestive heart failure
- Large pleural effusions or empyema
- Pulmonary embolism
- Rib fractures, with or without flail chest
- Surgical wound or healing tissue or recent skin grafts or flaps on the thorax
- Uncontrolled hypertension

- Distended abdomen
- Recent esophageal surgery
- Active or recent gross hemoptysis
- Uncontrolled airway at risk for aspiration such as tube feeding or a recent meal
- Subcutaneous emphysema
- Recent epidural spinal infusion or spinal anesthesia
- Burns, open wounds, and skin infections on the thorax
- Recent placement of transvenous or subcutaneous pacemaker
- Suspected pulmonary tuberculosis
- Lung contusion
- Bronchospasm
- Osteoporosis or osteomyelitis of the ribs
- Coagulopathy
- Complaint of chest wall pain

CLEANING

⚠ WARNING:

Follow the product manufacturer's instructions. Failure to do so could cause personal injury or equipment damage.

SHOCK HAZARD:

The potential for electrical shock exists with electrical equipment. Failure to follow protocols may cause death or serious personal injury.

SHOCK HAZARD:

Unplug the unit from its power source. Failure to do so could cause personal injury or equipment damage.

SHOCK HAZARD:

Do not expose the unit to excessive moisture or put it in water or any solution. Personal injury or equipment damage could occur.

⚠ CAUTION:

Do not use harsh cleansers, solvents, or detergents. Equipment damage could occur.

GENERAL CLEANING

We recommend that you clean the Air Pulse Generator and inflatable vest with detergent and warm water. Do not use excessive liquid or harsh cleansers, and do **not** put The Vest™ Airway Clearance System in water or any solution.

STEAM CLEANING

Do not use any steam cleaning device on the unit. Excessive moisture can damage mechanisms in this unit.

CLEANING HARD TO CLEAN SPOTS

To remove difficult spots or stains, we recommend that you use standard household cleansers and a soft bristle brush. To loosen heavy, dried-on soil, you may first need to saturate the spot.

Do **not** put The Vest™ Airway Clearance System in water or any solution.

DISINFECTING

When there is visible soilage, and also between patient use in multi-patient care environments, we recommend that you disinfect the unit. Use an Environmental Protection Agency (EPA) registered (US only), tuberculocidal disinfectant or standard household, mild, anti-bacterial soap or solution.

Dilute the disinfectant as specified on the manufacturer's label.

ACRONYMS

Acronym	Meaning
AARC	American Association for Respiratory Care
AWG	American Wire Gauge
CSA	Canadian Standards Association
HFCWO	High-Frequency Chest Wall Oscillation
ICP	Intercranial pressure
PVC	Polyvinyl chloride
UL	Underwriters Laboratories Inc.®[a]

a. Underwriters Laboratories Inc.® is a registered trademark of Underwriters Laboratories, Inc.

INTENDED USE

⚠ WARNING:

Read and follow all instructions for setup, use, and maintenance of The Vest™ Airway Clearance System. Failure to do so could cause patient injury or equipment damage.

This manual includes instructions for setup, use, and maintenance of The Vest™ Airway Clearance System, Model 105. Before setting up the The Vest™ Airway Clearance System, carefully read all of this manual. Following these instructions helps make sure the unit is used safely and helps maximize the therapeutic benefit of your treatment.

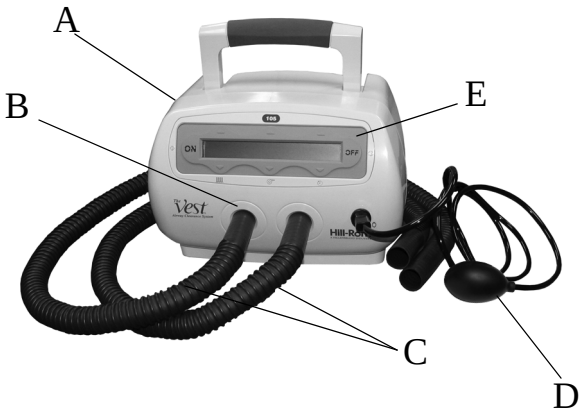
Most importantly, obey all warnings, cautions, and notes in this manual.

NOTE:
This manual is **not** intended as a substitute for information you receive from your physician or other healthcare providers. Use The Vest™ Airway Clearance System as intended for use as prescribed by your physician.

INTRODUCTION

The Vest™ Airway Clearance System was developed to help provide effective airway clearance. The unit has an inflatable vest attached by Air Hoses to an Air Pulse Generator. The Air Pulse Generator rapidly inflates and deflates the inflatable vest to gently compress and release the chest wall, creating airflow within the lungs. This process, which mimics coughing, moves mucus toward the large airways where it can be cleared by coughing or suctioning. This type of airway clearance therapy is referred to as High-Frequency Chest Wall Oscillation (HFCWO).

FEATURES



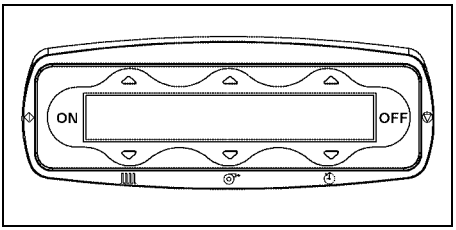
A	Air Pulse Generator	D	Remote Control
B	Air Hose Connection Ports	E	Control Panel
C	Air Hoses		

AIR PULSE GENERATOR

When correctly connected, the Air Pulse Generator controls the inflatable vest and supplies pulsations to the chest wall.

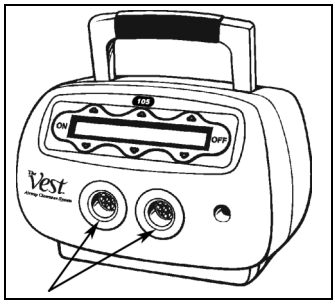
CONTROL PANEL

Pressing the **ON** or **OFF** controls or the 6 Up and Down arrow buttons, activates or deactivates the Air Pulse Generator.



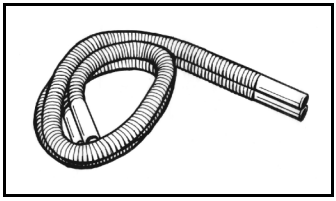
AIR HOSE CONNECTOR PORTS

The Air Hoses connect to the Air Pulse Generator at the two Air Hose Connector Ports on the face of the Air Pulse Generator.



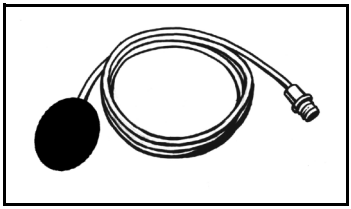
AIR HOSES

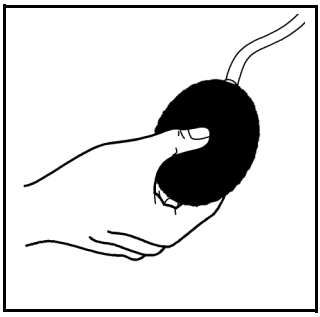
The Air Hoses connect the inflatable vest to the Air Pulse Generator.



REMOTE CONTROL

The Remote Control can be used instead of the **ON/OFF** control to pause or resume the Air Pulse Generator.

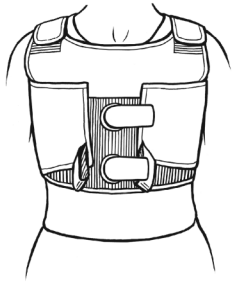




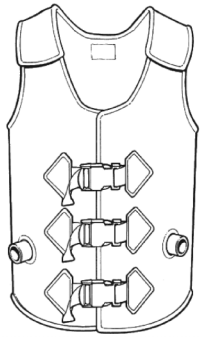
INFLATABLE VEST

The inflatable vest is available in two models—the standard Chest Vest, and the optional Full Vest.

When connected to the Air Pulse Generator by the Air Hoses, the inflatable vest is controlled by the Air Pulse Generator to provide pulsations to the chest wall. The Full Vest is available in a number of standard sizes and two neckline sizes. The most appropriate size will be provided to you with the Air Pulse Generator and other accessories.



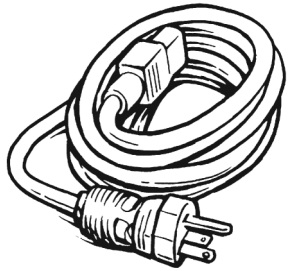
Chest Vest



Full Vest

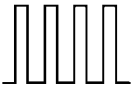
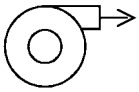
POWER CORD

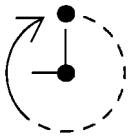
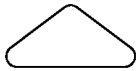
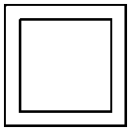
The Power Cord plugs into the Air Pulse Generator and a grounded outlet.



PRODUCT SYMBOLS

The following symbols are used on The Vest™ Airway Clearance System:

Symbol	Definition
	Type B equipment with an F-type applied part, according to EN 60601-1.
	Dangerous voltage within the device may constitute a risk of electrical shock.
	ON button—starts the Air Pulse Generator (starts therapy, inflates the inflatable vest, starts the unit after being paused)
	OFF button—stops the Air Pulse Generator (stops therapy, pauses therapy)
	**Frequency** setting
	**Pressure** setting

Symbol	Definition
	**Time** setting
	**Up** arrow button—increases the **Frequency**, **Pressure**, or **Time** setting
	Down arrow button—decreases the **Frequency**, **Pressure**, or **Time** setting
	Remote Control port
	Attention: Consult accompanying documents.
	Class II equipment (double insulated), according to EN60601-1
IPX 0	Not protected against water ingress

Symbol	Definition
	Medical Equipment with respect to electric shock, fire, mechanical, and other specified hazards only in accordance with UL/EN/IC 60601-1 and CAN/CSA C22.2 No. 601.1
	Conforms to the European Medical Device Directive 93/42/EEC
	Manufacturer or distributor complies with the Waste Electric and Electronic Equipment Directive 2002/96/EC

INSTRUCTIONS FOR USE

PROTOCOL FOR USE AND SPECIAL INSTRUCTIONS

Your physician has prescribed The Vest™ Airway Clearance System to be used _____ times per day.

Additional Instructions:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

NOTES:

_____
_____
_____
_____
_____
_____
_____
_____

If you have any questions or concerns, contact Hill-Rom Customer Service. For contact information, refer to the back cover. For countries no listed on the back cover, contact your distributor.

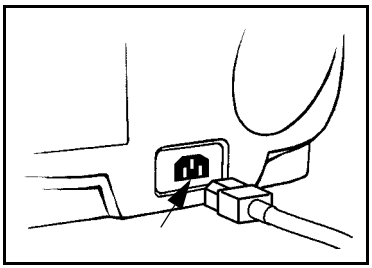
SETTING UP THE UNIT

NOTE:
If your physician has prescribed aerosol therapy to be used during the treatment, set up the appropriate equipment.

SHOCK HAZARD:

If the Air Pulse Generator is wet or damp, do **not** plug it into a power source or use it. Patient injury, personal injury, or equipment damage could occur.

1. Make sure the Air Pulse Generator is **not** wet or damp.
2. Plug the Power Cord into the back of the Air Pulse Generator.

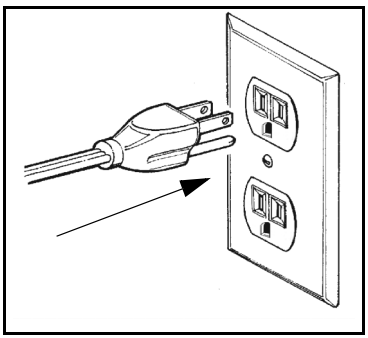


CAUTION:

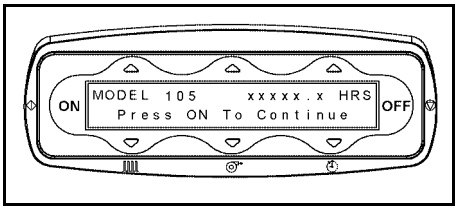
Use a correctly grounded electrical outlet **only**. Failure to do so could cause equipment damage.

3. Plug the Power Cord into a correctly grounded outlet.

NOTE:
The Power Cord required for your country may be different than shown.



NOTE:
Once the unit is plugged in, the following will show on the screen, or the ON button is pressed:



a. The Model number

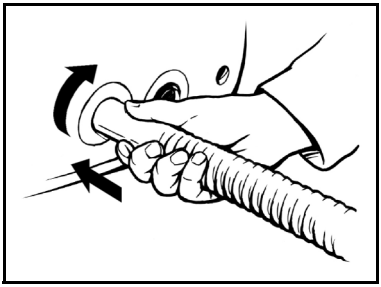
b. The total number of hours the device has been used.

NOTE:
To temporarily illuminate the backlight on the display, press any one of the six **Up** or **Down** arrow buttons.

⚠ CAUTION:

Do **not** run the Air Pulse Generator without the inflatable vest and Air Hoses attached. Equipment damage could occur.

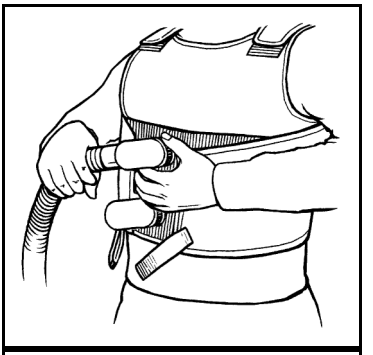
4. Connect the Air Hoses to the Air Hose Connector Ports on the front of the Air Pulse Generator.
5. Slightly twist the Air Hoses into the Air Hose Connector Ports to help secure the Air Hoses in position.

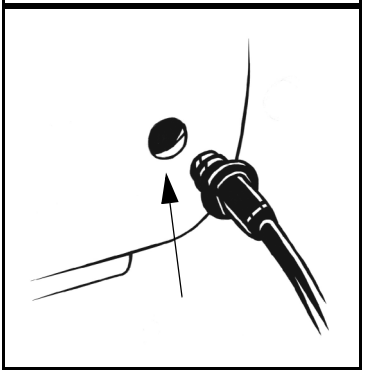


6. Fit the inflatable vest:
   - Chest Vest—refer to “Fitting the Chest Vest” on page 21.
   - Full Vest—refer to “Fitting the Full Vest” on page 23.

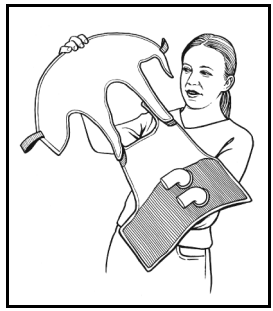
NOTE:
For patient comfort, it is recommended that a single layer of cotton clothing be worn beneath the inflatable vest.

7. Connect the Air Hoses to the ports on the inflatable vest.
8. Slightly twist the Air Hoses into the Air Hose Connector Ports to help secure the Air Hoses in position.
9. To use the optional Remote Control instead of the **ON** button, plug the Remote Control into the port on the front of the Air Pulse Generator.

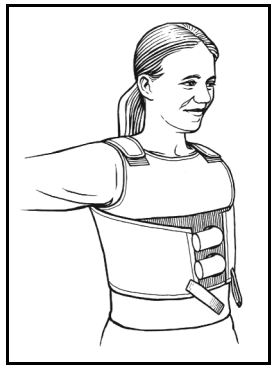




FITTING THE CHEST VEST



1. Unfasten the back panel tabs from the main hook-and-loop fastener, and separate the front and back panels of the Chest Vest.
2. Turn the Chest Vest so the Air Hose Connector Ports are in front, and slide the Chest Vest over the head.
3. With the Chest Vest deflated, temporarily attach both back panel tabs of the Chest Vest to the front panel.



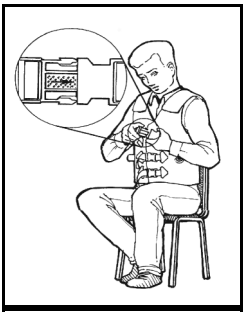
4. Adjust the hook-and-loop fasteners on the shoulder straps so the bottom of each arm opening of the Chest Vest is comfortably close to the underarm.
5. Detach both back panel tabs from the front of the Chest Vest.
6. For the best fit, inhale deeply, and then secure both back panel tabs to the front panel.

7. Make sure the Chest Vest fits close to the body without being uncomfortably snug.

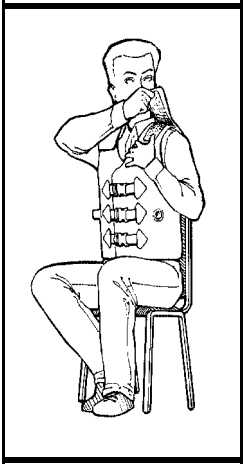
   - To **tighten** the fit at the bottom edge, angle the back panel tabs **upward**.

   - To **loosen** the fit at the bottom edge, angle the back panel tabs **downward**.

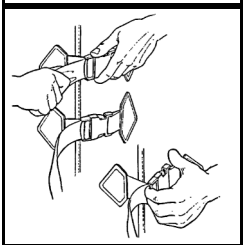
FITTING THE FULL VEST



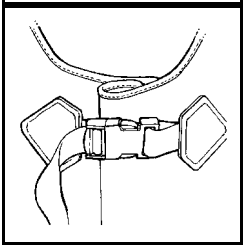
1. Put the Full Vest on so the closures are in front.
2. Connect the closures so the Full Vest fits loosely over the chest.



3. Using the shoulder straps, adjust the length of the Full Vest so its bottom edge is level with the top of the hip bone.
4. Using the front closures, adjust the Full Vest to fit close to the body without being uncomfortably snug:
   - To **tighten** the front closures, hold the buckle, and pull the end of the strap to the patient's right.
   - To **loosen** the front closures, gently lift the back of the buckle, and lengthen the strap.

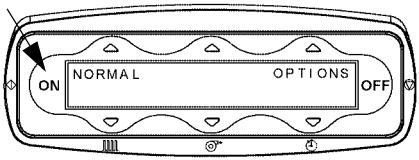


5. If any excess material is under the front closures, fold it under itself to make sure the Full Vest fits correctly:
   a. Loosen the front closures.
   b. Fold the top flap under itself.
   c. Tighten the front closures.

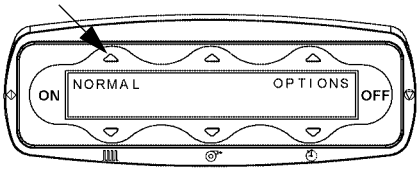


QUICK START INSTRUCTIONS

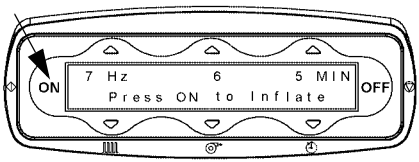
1. Make sure the inflatable vest is put on correctly.
2. Make sure the unit is set up correctly.
3. Press the **ON** button. The display will come on.



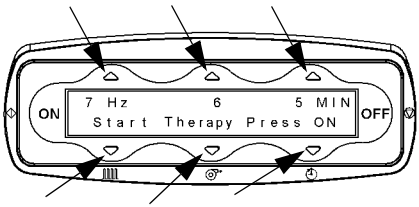
4. Press the **UP** arrow button above NORMAL.



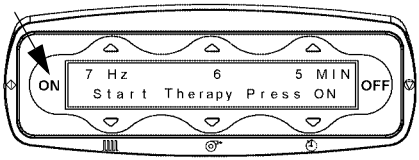
5. Press the **ON** button to inflate the inflatable vest. The current Frequency, Pressure and Time settings will be shown.



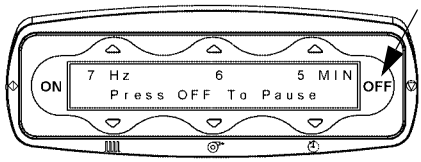
6. Use the Up and Down arrows to adjust the setting to match your prescription.



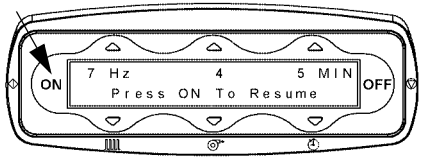
7. Press the **ON** button to begin treatment.



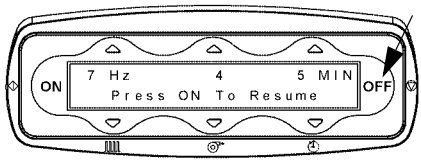
8. To pause treatment, press the **OFF** button **or** squeeze the Remote Control bulb one time.



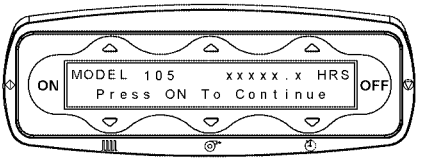
9. To resume treatment, press the **ON** button **or** squeeze the Remote Control bulb one time.



10. To end treatment, press the **OFF** button **or** squeeze the Remote Control bulb one time
11. Unplug the unit.
12. Remove the inflatable vest.



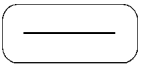
USING THE VEST™ AIRWAY CLEARANCE SYSTEM (MODEL 105)

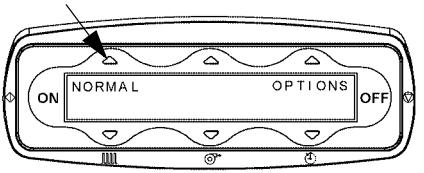


Make sure the unit is set up correctly. Once power is connected, the unit will show a blank screen for up to 15 seconds. Then it will show the model number and the total therapy hours for the unit. This screen will show for 10 seconds or until you press the **ON** button.

NOTE:
To show the total therapy hours, press the **OFF** button when the unit is on the main menu.

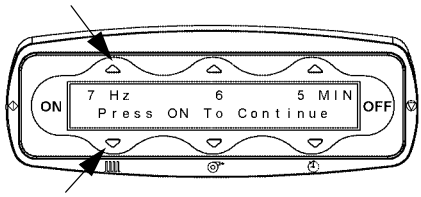
USING THE NORMAL MODE



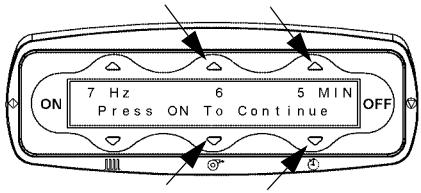


1. Press the **Up** arrow button above **NORMAL** for the standard operation mode. The screen will show the previously programmed Frequency, Pressure, and treatment Time settings (either factory settings or settings programmed by your clinical trainer based on your doctors prescription).
2. Confirm the settings on the screen. If the settings match the prescribed treatment, continue to step 3. Otherwise, adjust the settings to match the prescription.

a. To adjust the Frequency setting, press the left **Up** or **Down** arrow buttons until the prescribed treatment shows on the screen. The Frequency or Hertz (Hz) may be set between 5 and 20 cycles per second.



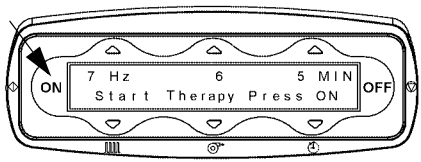
b. To adjust the Pressure setting, press the middle **Up** or **Down** arrow buttons until the prescribed treatment pressure shows on the screen. The pressure may be set between 1 and 10.



c. To adjust the treatment Time, press the right **Up** or **Down** arrow buttons until the prescribed treatment Time shows on the screen. The treatment Time may be set between 1 and 60 minutes.

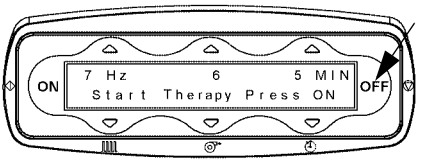
NOTE:
It is not necessary to stop the treatment to adjust the settings.

3. Press the **ON** button. The inflatable vest will inflate.



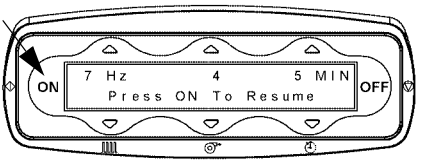
NOTE:
If the unit is left in this mode for 10 minutes, it will turn off.

4. Press the **ON** button again to begin the treatment. The set treatment Time shows as it counts down to zero.
5. If it is necessary to pause the treatment during a session, do as follows:
    a. Press the **OFF** button or Remote Control once. The unit will stop the pulsations, but the settings will continue to show on the screen.



NOTE:
When the unit is paused, the inflatable vest will deflate.

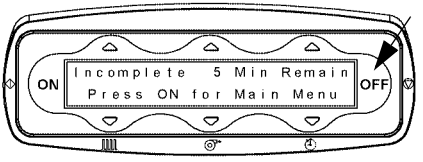
    b. To resume treatment, press the **ON** button or the Remote Control again.



6. If it is necessary to end the treatment session before it is complete, press the **OFF** button twice.

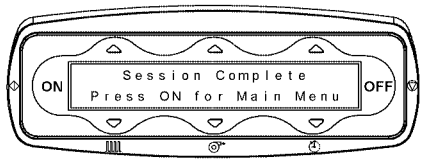
NOTE:
Pressing the **OFF** button does not turn off the screen.

7. When the **OFF** button is pressed twice, the inflatable vest deflates and the "Incomplete X Min Remain" message shows on the screen. You must press the **ON** button to continue to the main screen.



8. When the treatment session is complete:

   a. The “Session Complete” message shows.



   b. The pulsations stop.

   c. The inflatable vest deflates.

   d. Unplug the system from its power source.

   e. Remove the Air Hoses from the Air Hose Ports on the inflatable vest.

   f. Remove the inflatable vest.

NOTE:
With a **Chest Vest**, if a shoulder strap is unfastened, the inflatable vest will have to be refitted for each use.

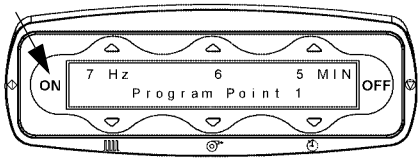
SETTING AND USING THE NEW PROGRAM MODE

New Program Mode allows the programming of up to eight (8) points with various settings within a single therapy session.

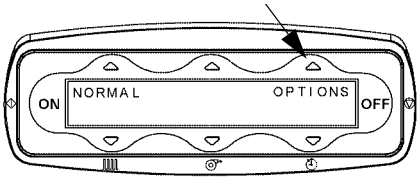
⚠ WARNING:

Consult your physician prior to changing prescribed settings. Failure to do so can cause personal injury.

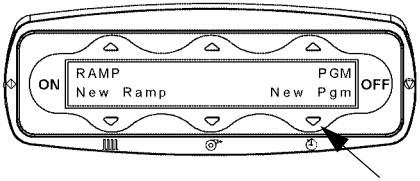
1. Press the **ON** button.



2. Press the **UP** arrow button above **OPTIONS**.



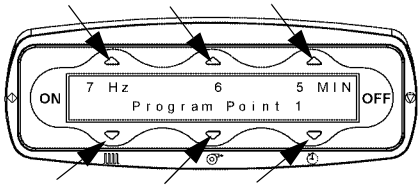
3. Press the **Down** arrow button below **New Pgm** to create a new program. The screen will show the Frequency, Pressure, and treatment Time settings for the first Programming Point.



NOTE:
All the settings can be adjusted.

NOTE:
You can program up to 8 different Programming Points, each with its own combination of Frequency, Pressure and treatment Time.

4. For Programming Point 1, if the settings match the prescribed treatment, continue to step 3.



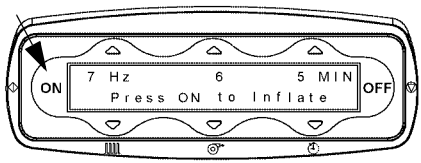
Otherwise, adjust the settings to match the prescription by pressing the **Up** and **Down** arrow buttons associated with Frequency, Pressure and treatment Time.

5. Once you have set Programming Point 1, proceed to Programming Point 2 by pressing the **ON** button (to move to a previous Programming Point, press the **OFF** button). Adjust the settings to match the prescription and repeat for all 8 Programming Points.

NOTE:
If the prescription does not call for all 8 Programming Points, **after** Programming Point 2, set the Time to 0 MIN for the following segment.

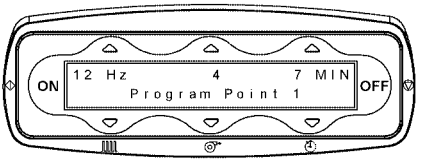
NOTE:
Once you change the Programming Point Time to 0 MIN and press the **ON** button, it will take you to the start of the program to begin therapy.

6. Press the **ON** button. The inflatable vest will inflate.



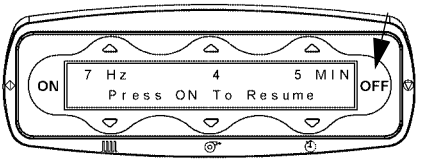
7. Press the **ON** button again to begin the treatment program. The set treatment Time shows as it counts down to zero for each Programming Point.

8. Therapy will automatically end after it has gone through each Programming Point.



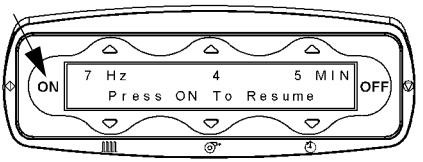
9. If it is necessary to pause the treatment during a session, do as follows:

   a. Press the **OFF** button or Remote Control once. The unit will stop the pulsations, but the settings will continue to show on the screen.



NOTE:
When the unit is paused, the inflatable vest will deflate.

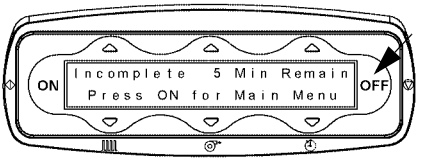
   b. To resume treatment, press the **ON** button or the Remote Control again.



10. If it is necessary to end the treatment session before it is complete, press the **OFF** button twice.

NOTE:
Pressing the **OFF** button does not turn off the screen.

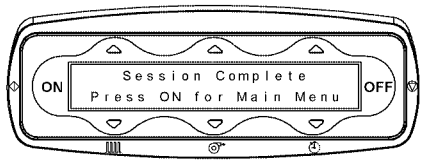
11. When the **OFF** button is pressed twice, the inflatable vest deflates and the "Incomplete X



Min Remain" message shows on the screen. You must press the **ON** button to continue to the Program and Ramp main screen.

12. When the treatment session is complete:

    a. The "Session Complete" message shows.



    b. The pulsations stop.

    c. The inflatable vest deflates.

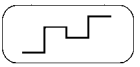
    d. Unplug the system from its power source.

    e. Remove the Air Hoses from the Air Hose Ports on the inflatable vest.

    f. Remove the inflatable vest.

NOTE:
With a **Chest Vest**, if a shoulder strap is unfastened, the inflatable vest will have to be refitted for each use.

USING THE PROGRAM MODE

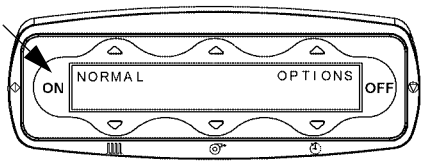


Runs a previously created New Program Mode.

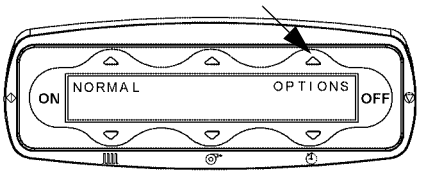
⚠ WARNING:

Consult your physician prior to changing prescribed settings. Failure to do so can cause personal injury.

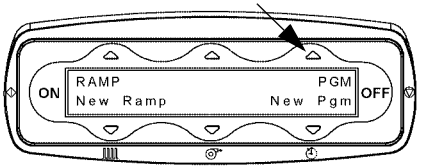
1. Press the **ON** button.



2. Press the **UP** arrow button above **OPTIONS**.

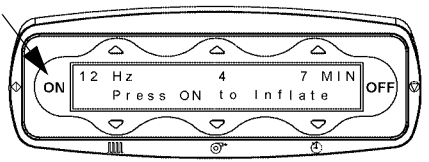


3. Press the **Up** arrow button above **PGM** to run the previously created program, or selected default program.

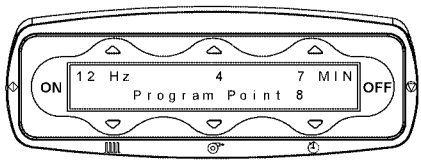


4. Press the **ON** button. The inflatable vest will inflate.

5. Press the **ON** button again to begin the treatment program. The set treatment Time shows as it counts down to zero for each Programming Point.

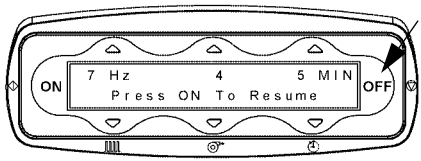


6. The therapy will automatically end after it has gone through each of the Programming Points.



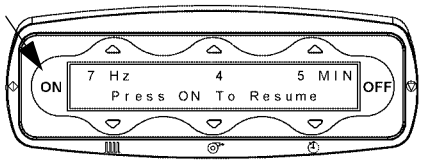
7. If it is necessary to pause the treatment during a session, do as follows:

   a. Press the **OFF** button or Remote Control once. The unit will stop the pulsations, but the settings will continue to show on the screen.



NOTE:
When the unit is paused, the inflatable vest will deflate.

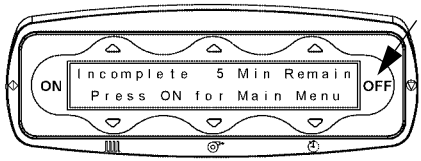
   b. To resume treatment, press the **ON** button or the Remote Control again.



8. If it is necessary to end the treatment session before it is complete, press the **OFF** button twice.

NOTE:
Pressing the **OFF** button does not turn off the screen.

9. When the **OFF** button is pressed twice, the inflatable vest deflates and the "Incomplete X

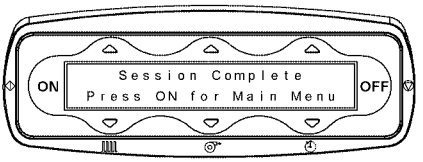


Min Remain" message shows on the screen. You must press the **ON** button to continue to the Program and Ramp main screen.

10. When the treatment session is complete:

    a. The "Session Complete" message shows.

    b. The pulsations stop.



    c. The inflatable vest deflates.

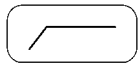
    d. Unplug the system from its power source.

    e. Remove the Air Hoses from the Air Hose Ports on the inflatable vest.

    f. Remove the inflatable vest.

NOTE:
With a **Chest Vest**, if a shoulder strap is unfastened, the inflatable vest will have to be refitted for each use.

SETTING AND USING THE NEW RAMP MODE

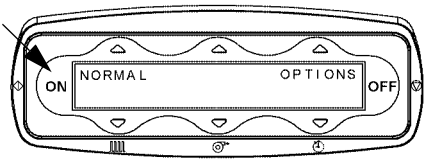


Creates a new Ramp Program to ease the patient from a lower setting to a higher setting during a limited period of the therapy session.

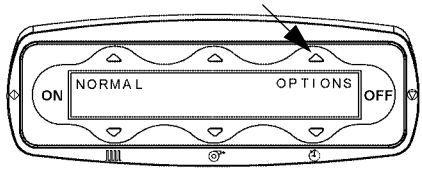
⚠ WARNING:

Consult your physician if not using the prescription as provided. Failure to do so can cause personal injury.

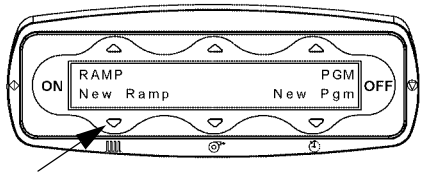
1. Press the **ON** button.



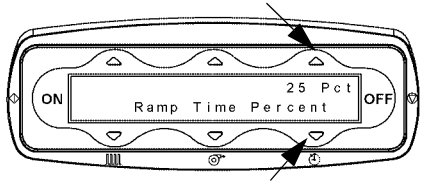
2. Press the **UP** arrow button above **OPTIONS**.



3. Press the **Down** arrow button below **New Ramp** to adjust the program settings.



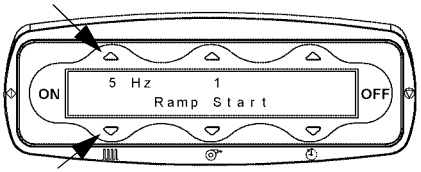
4. Look at the settings on the screen. **Ramp Time Percent** is the portion of the treatment Time required to increase from the initial settings (**Ramp Start**) to the final settings (**Ramp End**). To adjust the percent to the prescribed therapy, press the right **Up** or **Down** arrow buttons.



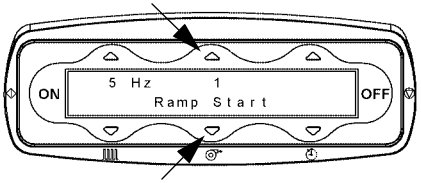
5. Press the **ON** button to advance to the next screen.

6. Review the settings for Frequency and Pressure for the initial setting, **Ramp Start**.

   a. To adjust the Frequency setting, press the left **Up** or **Down** arrow buttons until the prescribed treatment shows on the screen. The Frequency (or Hertz (Hz)) may be set between 5 and 20 cycles per second.



   b. To adjust the Pressure setting, press the middle **Up** or **Down** arrow buttons until the prescribed treatment Pressure shows on the screen. Pressure may be set between 1 and 10.



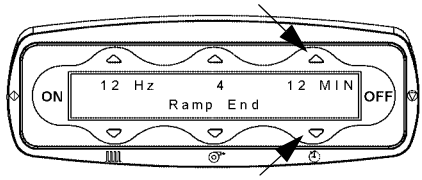
7. Press the **ON** button to advance to the next screen.

8. Review the settings on the screen. Frequency and Pressure for the final setting, **Ramp End**, are shown as treatment Time.

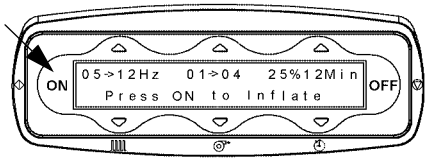
   a. To adjust the Frequency setting, press the left **Up** or **Down** arrow buttons until the prescribed setting shows on the screen. Frequency or Hertz (Hz) may be set between the Ramp Start setting and 20 cycles per second.

   b. To adjust the Pressure setting, press the middle **Up** or **Down** arrow buttons until the prescribed setting shows on the screen. Pressure may be set between the Ramp Start setting and 10.

c. To adjust the treatment Time, press the right **Up** or **Down** arrow buttons until the prescribed treatment Time shows on the screen. The treatment Time may be set between 1 and 60 minutes.

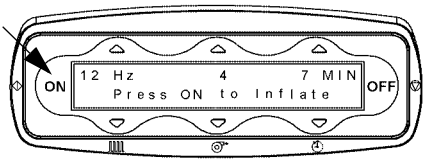


9. Press the **ON** button to advance to the next screen. This screen shows the summary of the ramp program you have just created.



10. Press the **ON** button. The inflatable vest will inflate.

11. Press the **ON** button again to begin the therapy. The screen will show the word Ramping during the ramp portion of the program. The total treatment Time shows as it counts down to zero.



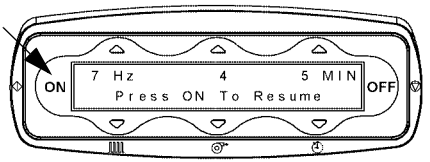
NOTE:
Therapy settings **can not** be changed during Ramping stage.

12. If it is necessary to pause the treatment during a session, do as follows:

    a. Press the **OFF** button or Remote Control once. The unit will stop the pulsations, but the settings will continue to show on the screen.

NOTE:
When the unit is paused, the inflatable vest will deflate.

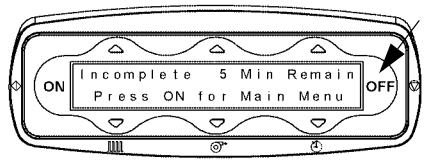
b. To resume treatment, press the **ON** button or the Remote Control again.



13. If it is necessary to end the treatment session before it is complete, press the **OFF** button twice.

NOTE:
Pressing the **OFF** button does not turn off the screen.

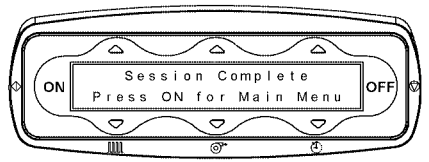
14. When the **OFF** button is pressed twice, the inflatable vest deflates and the "Incomplete X Min Remain" message shows on the screen. You must press **ON** to continue to the main screen.



15. When the treatment session is complete:

a. The "Session Complete" message shows.

b. The pulsations stop.



c. The inflatable vest deflates.

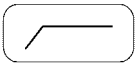
d. Unplug the system from its power source.

e. Remove the Air Hoses from the Air Hose Ports on the inflatable vest.

f. Remove the inflatable vest.

NOTE:
With a **Chest Vest**, if a shoulder strap is unfastened, the inflatable vest will have to be refitted for each use.

USING THE RAMP MODE

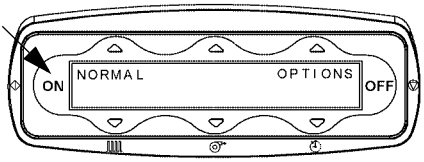


Runs a previously created Ramp Program.

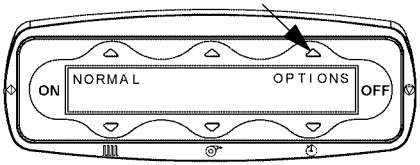
⚠ WARNING:

Consult your physician if not using the prescription as provided. Failure to do so can cause personal injury.

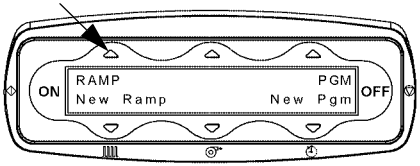
1. Press the **ON** button.



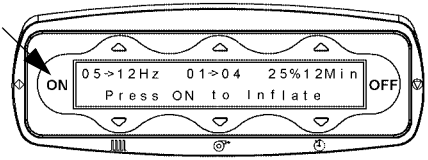
2. Press the **UP** arrow button above **OPTIONS**.



3. Press the **Up** arrow button above **RAMP** to run the previously created ramp program.

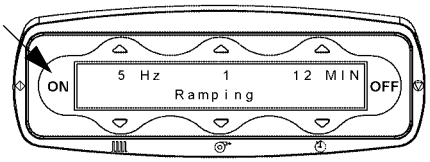


4. The programmed points will be shown. Press the **ON** button to advance to the next screen.



5. Press the **ON** button. The inflatable vest will inflate.

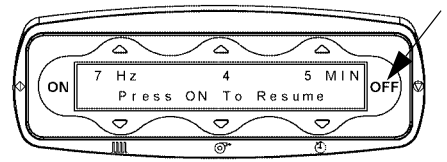
6. Press the **ON** button again to begin the program. The screen will show the word Ramping during the ramp portion of the program. The total treatment Time shows as it counts down to zero.



NOTE:
Therapy settings **can not** be changed during Ramping stage.

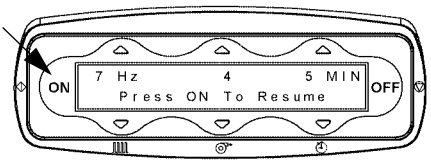
7. If it is necessary to pause the treatment during a session, do as follows:

   a. Press the **OFF** button or Remote Control once. The unit will stop the pulsations, but the settings will continue to show on the screen.



NOTE:
When the unit is paused, the inflatable vest will deflate.

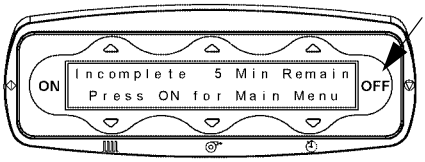
   b. To resume treatment, press the **ON** button or the Remote Control again.



8. If it is necessary to end the treatment session before it is complete, press the **OFF** button twice.

NOTE:
Pressing the **OFF** button does not turn off the screen.

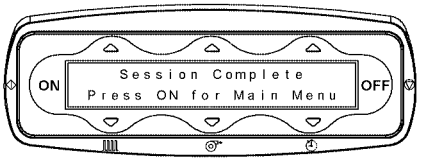
9. When the **OFF** button is pressed twice, the inflatable vest deflates and the "Incomplete X Min Remain" message shows on the screen. You must press the **ON** button to continue to the main screen.



10. When the treatment session is complete:

    a. The "Session Complete" message shows.

    b. The pulsations stop.



    c. The inflatable vest deflates.

    d. Unplug the system from its power source.

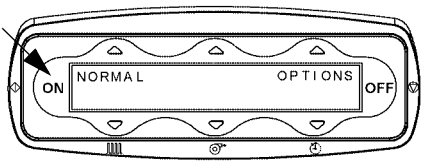
    e. Remove the Air Hoses from the Air Hose Ports on the inflatable vest.

    f. Remove the inflatable vest.

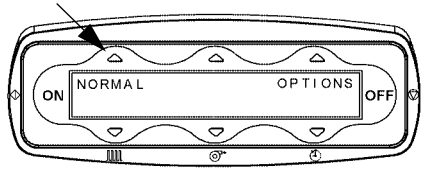
NOTE:
With a **Chest Vest**, if a shoulder strap is unfastened, the inflatable vest will have to be refitted for each use.

CHANGING THE LANGUAGE

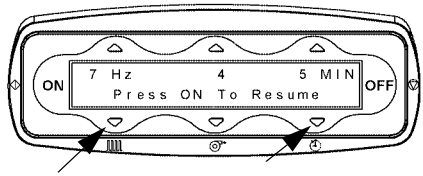
1. Press the **ON** button.



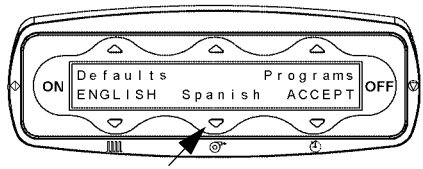
2. Press the **Up** arrow button above **NORMAL**. The Normal mode screen shows.



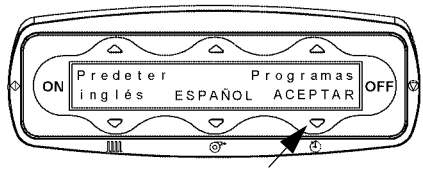
3. Press the two **outside Down** arrow buttons for a minimum of 3 seconds (or until the screen changes).



4. Press the **Down** arrow button below **Spanish** (it will turn "Spanish" to "ESPANOL").



5. To accept the change, press the **Down** arrow button below **ACEPTAR** (ACCEPT in English).

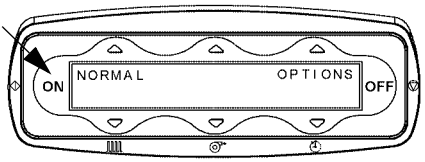


6. Once you have accepted the change, the system will automatically re-boot and go back to the main screen in Spanish.

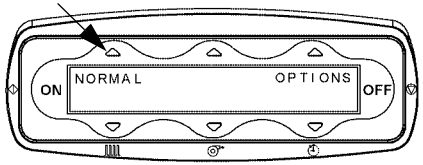
7. Once the main screen is visible, unplug the unit and plug it back in. The unit will automatically reconfigure in Spanish.
8. To switch back to English, repeat the steps and choose **ingles** instead of **Spanish**.

DISABLING THE PROGRAM MODES (PROGRAM AND RAMP MODES)

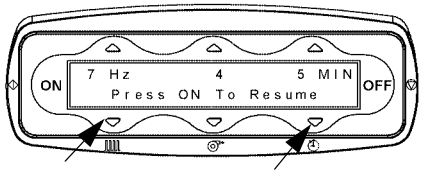
1. Press the **ON** button.



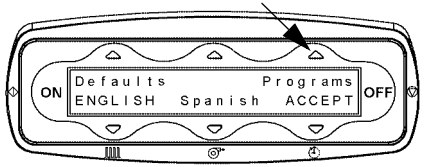
2. Press the left **Up** arrow button above **NORMAL**. The Normal mode screen shows.



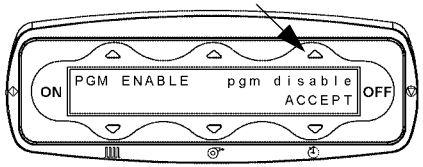
3. Press the **two outside Down** arrow buttons for a minimum of **3 seconds**, or until the screen changes.



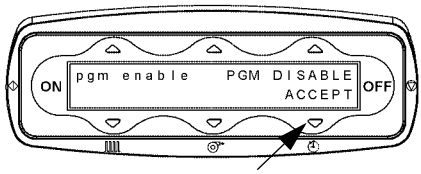
4. Press the right **Up** arrow button above **Programs**.



5. Press the right **Up** arrow button above **pgm disable** (It will turn to **PGM DISABLE**).



6. To accept the change, press the right **Down** arrow below **ACCEPT**.

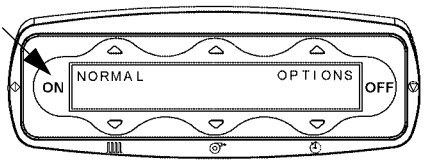


7. To accept all changes and **exit** out of the menu, press the right **Down** arrow button below **ACCEPT**.
8. Once you have accepted the change, the system will automatically re-boot and go to the main screen of NORMAL Mode. You will no longer be able to see the Program or Ramp mode programs.
9. To switch back to Program Mode, repeat the steps starting at step 2.

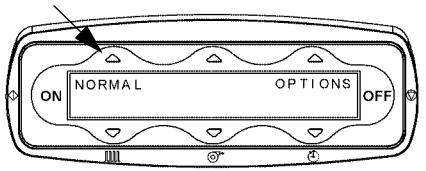
NOTE:
Press the **Up** arrow button above **pgm enable** at step 4 to enable the Program Mode. It will change **pgm enable** to **PGM ENABLE**).

SETTING CUSTOM DEFAULT SETTINGS

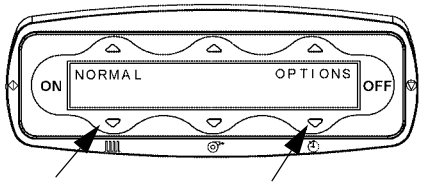
1. Press the **ON** button.



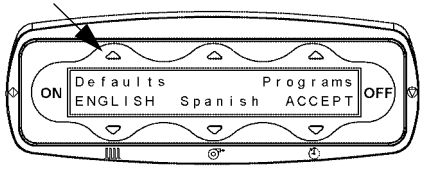
2. Press the **Up** arrow button above **NORMAL**. The Normal mode screen shows.



3. Press the **two outside Down** arrows for a minimum of **3 seconds**, or until the screen changes.

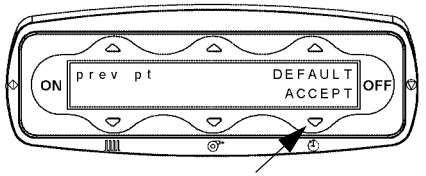


4. Press the left **Up** arrow button above **Defaults**.

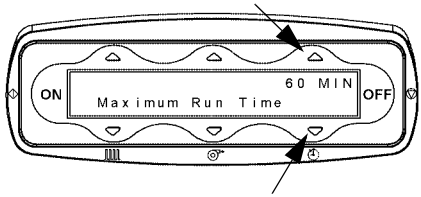


5. Press the right **Up** arrow button above **default** (**Defaults** will change to **DEFAULTS**).

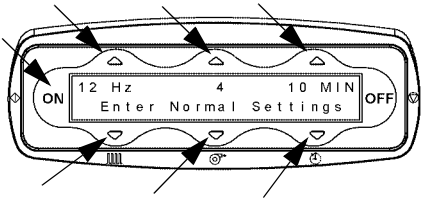
6. To accept the change, press the right **Down** arrow button below **ACCEPT**.



7. To adjust the **Maximum Run Time** use the **Up** and **Down** arrow buttons above and below **MIN** and then press the **ON** button.

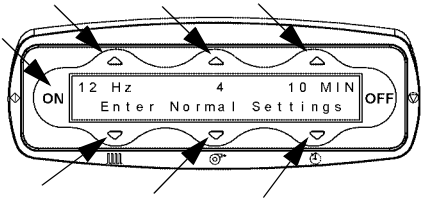


8. To set default Frequency, Pressure and Time settings for Normal Mode, adjust each by using the respective **Up** and **Down** arrow buttons and press the **ON** button.

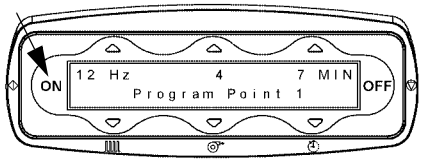


9. To adjust the default settings for **Program Mode,** set each **Program Point** sequentially. Press the **ON** button to advance to the next Programming Point.

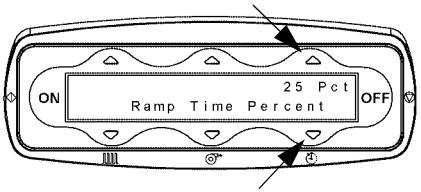
10. Adjust Frequency, Pressure and Time for each **Program Point** (1 thru 8) or change the time to zero, after Program Point 3, to make the previous point the last point.



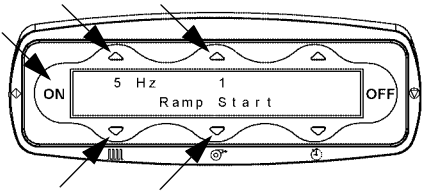
11. Press the **ON** button to advance to the next default setting.



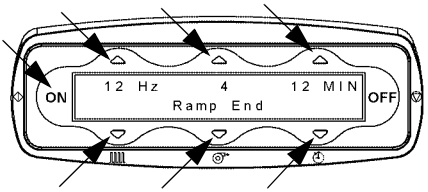
12. Adjust the **Ramp Time Percent** for the **Default Ramp** mode using the right **Up** and **Down** arrow buttons, and press the **ON** button.



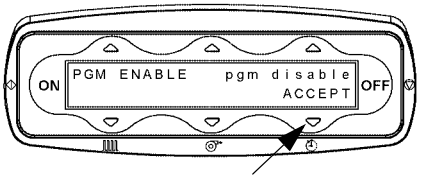
13. Adjust the **Ramp Start Frequency, and Pressure** settings for default **Ramp Mode** by using the left and middle **Up** and **Down** arrow buttons, and press the **ON** button.



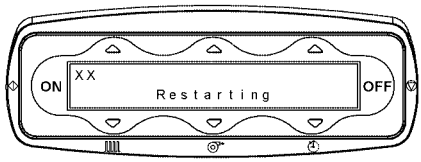
14. Adjust the **Ramp End** settings for default **Ramp Mode Frequency**, **Pressure** and **Time** settings using the **Up** and **Down** arrow buttons, and press the **ON** button.



15. To accept all of the changes, press the right **Down** arrow below **ACCEPT**.



16. Once you have accepted the change, it will automatically re-boot the system and go back to the main screen.



17. To switch back to previous patient default mode, repeat the steps and select **prev pt** instead of **default**.

MAINTENANCE

⚠ WARNING:

Only authorized personnel should service The Vest™ Airway Clearance System. Servicing by unauthorized personnel could cause personal injury or equipment damage.

The Vest™ Airway Clearance System requires minimal routine maintenance. Periodic cleaning is required (see “Cleaning” on page 7).

If service is required on The Vest™ Airway Clearance System, contact Hill-Rom Customer Service. For contact information, refer to the back cover.

SERVICE CALLS

When you contact Hill-Rom about The Vest™ Airway Clearance System, be prepared to give the serial number from the product identification label. The product identification label is located on the back of the Air Pulse Generator.

When you give the serial number, the Hill-Rom representative can identify your unit and give you the information you need more quickly.

TROUBLESHOOTING

⚠ WARNING:

Only authorized personnel should service The Vest™ Airway Clearance System. Servicing by unauthorized personnel could cause personal injury or equipment damage.

If service is required on The Vest™ Airway Clearance System, contact Hill-Rom Customer Service. For contact information, refer to the back cover.

AIR PULSE GENERATOR DOES NOT POWER ON

1. Make sure the Power Cord is securely plugged into the electrical inlet on the rear panel of the Air Pulse Generator. If necessary, unplug the Power Cord from the Air Pulse Generator, and then reconnect.
2. Make sure the Power Cord is securely plugged into an appropriate power source.
3. If the problem still exists, contact Hill-Rom Customer Service. For contact information, refer to the back cover.

NO AIR PULSES INTO THE VEST

1. If using the Remote Control, make sure it is securely connected to the Remote Control Port on the front panel of the Air Pulse Generator.
2. Make sure the Air Hoses are connected to the inflatable vest and Air Pulse Generator.
3. If the problem still exists, contact Hill-Rom Customer Service. For contact information, refer to the back cover.

SCREEN SHOWS “PLEASE CALL FOR SERVICE” MESSAGE

The system has experienced an unexpected event. Do as follows:

1. Unplug the Power Cord from the Air Pulse Generator, and then plug it in again.
2. If the problem is not corrected, call Hill-Rom Customer Service. For contact information, refer to the back cover.

AN AIR HOSE COMES OUT OF THE AIR PULSE GENERATOR OR INFLATABLE VEST DURING OPERATION

1. Fully disconnect the Air Hoses from the Air Pulse Generator and the inflatable vest.
2. Clean the inside and outside of these:
   - Ends of the Air Hose
   - Connection Ports on the inflatable vest
   - Air Hose Connector Ports outlets on the Air Pulse Generator
3. Connect the Air Hoses to the Air Pulse Generator and the inflatable vest (see “Setting Up the Unit” on page 18).
4. If the problem is not corrected, call Hill-Rom Customer Service. For contact information, refer to the back cover.

SCREEN SHOWS “RESTARTING”

1. The system has experienced an unexpected event and is restarting.
2. If the problem is not corrected, call Hill-Rom Customer Service. For contact information, refer to the back cover.

THE INFLATABLE VEST NO LONGER FITS

1. Adjust the inflatable vest to accommodate normal growth:
   - To fit a Chest Vest, refer to “Fitting the Chest Vest” on page 21.
   - To fit a Full Vest, refer to “Fitting the Full Vest” on page 23.
2. If the problem still exists, contact Hill-Rom Customer Service. For contact information, refer to the back cover.

STORAGE AND HANDLING

To store or transport The Vest™ Airway Clearance System, do as follows:

1. Put the Air Pulse Generator in the roller bag.
2. Put the Air Hoses in either of the end compartments.
3. Put the inflatable vest in the other end compartment along with the Remote Control and Power Cord.
4. Close the roller bag to secure the unit inside.

SHIPPING THE UNIT

⚠ CAUTION:

If shipping is required, the original packing material provides the best protection for The Vest™ Airway Clearance System. Retain the original packaging material. Failure to do so could cause equipment damage.

If shipping is required, ship the unit in its original packing material.

FREQUENTLY ASKED QUESTIONS

- Is The Vest™ Airway Clearance System as effective as chest physiotherapy (CPT)?
  - Research has shown that the system is nearly three times as effective as the use of chest physiotherapy to move airway secretions.
- Does The Vest™ Airway Clearance System effectively treat all areas of my lungs?
  - Yes. The system oscillates the chest wall to create airflow to all lung areas to effectively treat all lobes of the lung at once.
- How long should my Airway Clearance Therapy treatment session last?
  - Common prescriptions specify a treatment session time to be between 10 and 30 minutes. Prescribed treatment session times may be different.
- How often should my treatment sessions be given?
  - The frequency of treatment sessions depends on your underlying disease, age, and state of health. Your physician will prescribe a schedule for your individual needs.
- Is chest physiotherapy still necessary?
  - In a number of studies, The Vest™ Airway Clearance System has been shown to supply more effective Airway Clearance Therapy than conventional chest physiotherapy. Typically, it is not necessary to do chest physiotherapy along with therapy treatment sessions with The Vest™ Airway Clearance System.

- Is postural drainage still necessary?
  - The Vest™ Airway Clearance System moves mucus by generating airflow within the lungs. It works in any position, so generally it should not be necessary to do postural drainage. Refer to the physician's order.
- What will happen if I miss a treatment session?
  - One missed treatment session of the system may or may not affect your health. However, the key to help maintain your health is consistent, effective therapy. Follow the doctor's care plan as closely as possible. Consult your doctor if a treatment session is missed.
- Is there a best time to do a therapy with The Vest™ Airway Clearance System?
  - Establish a schedule that works for you and your family, and lets you do the therapy consistently. Usually, it is best to do therapy before meals.
- Do all patients receive the same benefits from The Vest™ Airway Clearance System?
  - Almost all patients will experience an increase in the amount of mucus that is moved. The overall benefit depends on many factors, which include the underlying disease, patient's age, and present state of health.
- Will The Vest™ Airway Clearance System make me feel better?
  - Patients often report that they are able to breathe better, and have more energy after therapy.

SPECIFICATIONS

Feature	Dimension
Air Pulse Generator weight	17 lb (8 kg)
Air Pulse Generator height	9.5" (24.1 cm)
Air Pulse Generator width	13" (33 cm)
Air Pulse Generator depth	9.5" (24.1 cm)
Inflatable vest material—Chest Vest	Polyvinyl chloride (PVC)-coated polyester with polyurethane-coated nylon
Inflatable vest material—Full Vest	Polyurethane-coated nylon
Electrical requirements	100 V AC to 230 V AC, 50 Hz to 60 Hz 3.4 A @ 100 VAC 2.0 A @ 230 VAC
Fuse requirement	2 each 4 A, 5 x 20 mm (Littel-fuse part number F4AL250V)

Environmental Conditions for Transport and Storage

Condition	Range
Temperature	-40°F to 158°F (-40°C to 70°C)
Relative humidity	95% non-condensing
Atmospheric pressure	500 hPa to 1060 hPa

Environmental Conditions for Use

Condition	Range
Temperature	50°F to 93°F (10°C to 34°C) ambient temperature
Relative humidity range	30% to 75% non-condensing
Atmospheric pressure	700 hPa to 1060 hPa

REGULATIONS, CODES, AND STANDARDS

The Vest™ Airway Clearance System is listed with Underwriters Laboratories Inc.®[1] (UL) to US and Canadian product safety standards.

The unit is Type B equipment, with an F-type applied part.

1. Underwriters Laboratories Inc.® is a registered trademark of Underwriters Laboratories, Inc.

Guidance and Manufacturer's Declaration— Electromagnetic Immunity

The Vest™ Airway Clearance System, Model 105 is intended for use in the electromagnetic environment specified below. The customer or user of the Model 105 should make sure it is used in such an environment.

Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment— Guidance
Electrostatic discharge (ESD) IEC 61000-4-2	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	± 2 kV for power supply lines 1± kV for input/output lines	± 2 kV for power supply lines 1± kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV differential mode ± 2 kV common mode	± 1 kV differential mode ± 2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% U_T (>95% dip in U_T) for 0,5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95% dip in U_T) for 5 seconds	<5% U_T (>95% dip in U_T) for 0,5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95% dip in U_T) for 5 seconds	Mains power quality should be that of a typical commercial or hospital environment. If it is necessary for the user to have continued operation of the Model 105 during power mains interruptions, it is recommended that the Model 105 be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

NOTE: U_T is the AC mains voltage prior to application of the test level.

Guidance and Manufacturer's Declaration—Electromagnetic Immunity

The Vest™ Airway Clearance System, Model 105 is intended for use in the electromagnetic environment specified below. The customer or user of the Model 105 should make sure it is used in such an environment.

Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment—Guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 V	Portable and mobile RF communications equipment should be used no closer to any part of the Model 105, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance** $d = \left[\frac{3.5}{3}\right]\sqrt{P}$
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2,5 GHz	3 V/m	80 MHz to $d = \left[\frac{3.5}{3}\right]\sqrt{P}$ 800 MHz 800 MHz to $d = \left[\frac{7}{3}\right]\sqrt{P}$ 2,5 GHz where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m).

The Vest™ Airway Clearance System, Model 105 is intended for use in the electromagnetic environment specified below. The customer or user of the Model 105 should make sure it is used in such an environment.

Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment—Guidance
			Field strengths from fixed RF transmitters, as found by an electromagnetic site survey[a], should be less than the compliance level in each frequency range[b]. Interference may occur in the vicinity of equipment marked with this symbol:

NOTE: At 80 MHz and 800 MHz, the higher frequency range applies.
NOTE: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

a. Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast, and TV broadcast can not be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, the electromagnetic site used should be considered. If the measured field strength in the location in which the Model 105 is used is more than the applicable RF compliance level above, the Model 105 should be monitored to make sure it operates correctly. If it operates incorrectly, additional measures may be necessary, such as a change in the Model 105's position or location.

b. Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

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